Hamilton (F. H.)

ELKOPLASTY,

OR

ANAPLASTY APPLIED

TO THE

TREATMENT OF OLD ULCERS,

(A REPLY TO DR. WATSON'S RECLAMATION.)

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ELKOPLASTY,

OR ANAPLASTY APPLIED TO THE

TREATMENT OF OLD ULCERS.

A SERIOUS misapprehension of the nature and purpose of my late operation of Elkoplasty, has provoked, on the part of an esteemed friend, a "Reclamation," accompanied with a brief homily on morals and ethics, the tone of which is somewhat severe, and, as I trust I shall be able to show, in its present application at least, undeserved.

"In our current medical literature we occasionally meet with the announcement of surgical operations and of other performances, as novelties, which have no claim to be so considered. In some instances of this sort, I have seen friends and acquaintances unjustly overlooked; and in some, again, I have had reason to complain on my own account. Up to the present time, however, I have been willing to allow whatever little may have been added to the stock of surgical knowledge by myself to make its own way in the world, and pass for what it is worth, independent of the source whence it came. Nor should I on the present occasion deviate from this course, had I not in view the correction of an evil which appears to be on the increase.

The eagerness with which the busy practitioner is now and then solicited to write for the periodicals, and the little time he usually bestows upon his literary contributions, may offer some excuse for the unintentional oversights, or acts of injustice to which I now allude. But it should be remembered that the desire of being useful is not the only incentive to authorship; and that, among the rewards of the medical writer, not the least is the favorable notice of his labor by his professional brethren.

I would not do our critics and reporters the injustice to suppose that in any considerable number of instances, the oversights to which I allude are intentional. Hasty composition and deficient information will explain the most of them."

Such is the language employed by Dr. Watson in his Reclamation, and, in illustration of the justness of which, he has called attention to my paper on Elkoplasty, read originally before the "Buffalo City

Medical Association," and published in the September number of this journal.

Dr. Watson assumes that, in the paper referred to, I claim to have been the first to cure an ulcer by Anaplasty: of which claim, he affirms, "in his proposal as well as in his results, Dr. H. has been anticipated by myself, once in April, and once in July, 1844."

To which I beg courteously to reply—

(Waiving for the present the inaccuracy of the statement, that I have at any time offered such a claim) Dr. Watson did not anticipate me in my "proposal" to cure ulcers by Anaplasty.

He has mistaken the application, and the principle of my operation.

He has not anticipated me in my "results."

Each of these several propositions I hope soon to make good.

Dr. Watson finds that his first proposal to cure an ulcer by Anaplasty was made in 1844. The patient was admitted to the Hospital on the 19th of April, 1844, and the operation was made on the 27th of July of the same year.

If this was not the first proposal of the kind made by himself, it is, at least, that upon which in the present instance he relies to convict me of "injustice."

Of the precise month and day, upon which my "proposal" was made, Dr. Watson had probably no knowledge, for I do not see that he could have had the means of knowing; but that he had the means of knowing the year with certainty, the following, from the very paper which provokes his censure, is sufficient evidence. "In the report of my surgical clinic for 1846,"* etc., etc. "*Two years before the date of this clinic*, when I took the cast alluded to in the above report, I made the same proposition to the lad, and when he declined submitting to it, I appealed to his father, who was a worthless inebriate, to allow me to secure one of his legs to his son's, that I might make the transplantation from him."†

Thus far my proposal dates from the year 1844. How, then, could a writer, impressed with the necessity of vindicating his own rights, and the rights of his friends against unjust claims, have incurred so plain a risk of subjecting himself to the keen and polished points of his own weapons! How could my friend assume so positively that, in the "proposal" as well as in the results, he had anticipated me? For it not only might have happened, for aught that he knew to the

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* *N. Y. Journal of Med.*, vol. xiii., p. 168.—Hamilton *On Ulcers treated by Anaplasty.*

† Ibid., p. 168.

contrary, that I had anticipated him at least three months, but it actually did so happen. The cast was taken, and the proposal was made on the 10th of January, 1844, as the records of my clinic will show.

I am aware how immaterial the discussion of this point may seem to my readers, but since it is made to occupy a prominent place in the Reclamation, I trust no apology on my part is necessary.

It may not, however, be regarded as immaterial, that I should attempt to show that he has mistaken the application of my operation.

I knew very well that Anaplasty in some form had been before applied to the treatment of ulcers; I had often seen it so applied: I had so applied it myself in numerous instances. Indeed, if one will read "Velpeau's Operative Surgery," the same which had been translated by Townsend, and in the American appendix to which is contained a report of Dr. Watson's first case, he will find that M. Velpeau himself has proposed and practiced the cure of ulcers by Anaplasty.

"*Anaplastie par simples incisions latérales. Procédé de Dieffenbach.* * * * * * C'est une méthode opératoire qu'on a déjà mise en pratique autour de la bouche, aux joues, au voile du palais, sur les côtés de la plupart des fistules, que j'ai essayée aussi dans certains cas d'anus contre nature, *d'ulcére des membres*, de perforations de la voûte du palais."*

The application of Anaplasty to the treatment of ulcers, or granulating surfaces, is, I conceive, as old as Anaplasty itself. Surgeons have never ceased, since I began my apprenticeship, to resect or quicken the edges of stubborn, callous ulcers, and, either with or without such lateral incisions as are described by Velpeau, to attempt anew the closure of the wound by sutures, straps, or bandages. Nor does my omission to allude to this imply ignorance of the fact, or improper motives, any more than does Dr. Watson's omission, in the published report of his case, in the appendix to the American edition of Velpeau's Surgery, imply ignorance or improper motive; a report which he furnished himself to Dr. Townsend. ("Communicated by Dr. Watson for this work, and never before published."†)

The operation which I proposed had a limited and special application. It was intended, not for all ulcers, nor, indeed, for all "old" ulcers, as the title of my paper might possibly imply, but only for a peculiar and unusual variety of old ulcers, which could not very well

* *Nouveaux Éléments de Médicine Opératoire.* Par Alf. A. L. M. Velpeau. Edit. 1839. Tome Première, p. 631. Paris.

† Op. cit., vol. i., p. 711.

have been specified in the title, but which have been carefully described in the course of the paper.

"Some writer has said, 'old ulcers in 1830 will be old ulcers in 1860,' which, not to be understood always in a literal sense, was intended only to express, in a brief and pertinent form, the proverbial obstinacy of this class of sores.

In most cases, the integument has been broken and destroyed by ulceration, and then, usually, bad health, or, perhaps, enlarged veins, have helped to perpetuate the lesion. *In other cases, however, the ulcers are directly in consequence of lacerating injuries, which have at once torn away the skin beyond the power of nature to repair; and that although the health of the body and of the limb may be perfect. In such cases, the refusal of the ulcers to heal is entirely owing to the extensive loss of integument.*"* . . . .

"I beg to suggest a procedure which, hereafter, in some unfortunate cases of *this class*, may deserve a trial."†

"*Summary:*—

1st.—Ulcers, accompanied with extensive loss of integument, do generally refuse to heal, whatever may be the health of the body or of the limb.

2d.—Anaplasty will sometimes succeed in accomplishing a permanent cure, and especially where the health of the body and of the limb are perfect, and where, by inference, the refusal to heal is alone attributable to the extent of the tegumentary loss."‡

I do not know that I could have been more explicit.

Whether such cases ever occur, in which the refusal of the ulcer finally to heal is entirely owing to the great amount of integument which has been lost, is certainly another question, and one which it may be proper hereafter to consider.

Is it not plain, then, that the "application" of my operation has been misapprehended, when a case is cited as its parallel§ in which "the cavity was about two inches and a half in its shortest diameter," and, as the accompanying engraving will show, was but little more in its longest diameter—in which the obstacle to closure was the complete inversion of the margin of the skin, so that the hair actually lay against the bottom of the cavity; with a necrosis of the external plate of the skull, which was lying exposed at the inner, outer and lower margins of the cavity—and this, possibly, as the report intimates, dependent upon some remaining venereal taint? That these were the only obstacles to closure we infer, because such obstacles are stated to have

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* *New York Jour. of Med.*, New Series, vol. xiii., p. 165. Elkoplasty.

† Ibid., p. 167. ‡ Ibid., p. 172.

§ VELPEAU'S *Operative Surgery*, by MOTT. Vol. i., p. 711. American Appendix.

existed, and no mention is made of any other impediments. It is not said that the loss of skin had ever been very extensive, or that one line of new skin had ever formed upon the margin of the old, or that the integuments in the vicinity had been drawn centripetally until their elasticity had become exhausted.

No less has Dr. Watson misapprehended the principle of my operation; a principle which derives its suggestion from the peculiar necessities of the ulcer described, and by application to which form o ulcer alone could it have found a satisfactory solution.

Permit me to read the report of my clinic as contained in my paper on Elkoplasty.

"The Dr. has proposed to the boy a plastic operation, with the view of planting upon the *center* of the ulcer a piece of new and perfectly healthy skin. He proposes to take this from the calf of the other leg (having secured the two together), *not intending to cover the whole sore, but perhaps two or three square inches, which he believes will be enough to secure the closure of the whole wound in a short time.*" p. 168.

Again:

"By this means, I hope, gentlemen, not only to supply an amount of skin equal to the size of the piece transferred, but to furnish, also, a nucleus from which additional skin shall be formed. I hope to establish a new centre of life—an oasis—from whose outer verge a true and healthy vegetation shall advance in every direction over the exhausted soil.

It is not improbable, also, that the graft will itself expand, or be drawn centrifugally by the contraction of the surounding granulations and cicatrix, conversely, as the skin about the ulcer had before been stretched and drawn centripetally, by a similar action of the granulations and cicatrix situated within its free margin, so that, after a time, it will cover more space, independent of any actual growth, than it did originally. The opposite of this happens usually in Anaplasty, and would occur here, did the flap equal or exceed in size the wants of the parts to be supplied. The flap would contract, thicken, and project itself above the surface. But in old ulcers, it will generally be found impossible to furnish a direct supply of integument equal to the loss. A deficiency must probably still exist, and sufficient, it is believed, to determine in the transplanted skin a necessity of expansion.

The value and practicability of these views are, I trust, in a measure established by the results, in the case which I shall now take the liberty of bringing before you." p. 167.

And as if this were not sufficient to declare my meaning, I have repeated these essential points in a *Summary*.

"3d.—The graft must be brought from a part quite remote; generally from an opposite limb, or from another person.

4th.—If smaller than the chasm which it is intended to fill, the graft will grow, or project from itself new skin to supply the deficiency.

5th.—It is not improbable that the graft will expand during the process of cicatrization at its margins, but especially for a time after the cicatrization is consummated.

6th.—In consequence of one or of both of these two latter circumstances, it will not be necessary to make the graft so large as the deficiency it is intended to supply." p. 172.

Yet Dr. Watson believes that the only points of difference between our cases, "at least so far as principles are involved," are that in my case the flap was taken from an opposite limb, in his, from the immediate vicinity of the sore—in my case the knife was used; in his, the knife in one instance, and a wash of concentrated aqua ammonia, in the other!

I confess that in my failure to explain myself intelligibly to a mind which, a personal acquaintance enables me to say, is so quick and discriminating, I have experienced no little mortification. I am compelled to believe that my statements have lacked perspicuity. So far, indeed, is he from having entertained the idea, or the principle upon which alone my procedure was based, it has not yet been suggested to him, for he has in his closing paragraph, as if by accident, described the very case, or a case closely analogous to that for which I have proposed to operate, and then he has left it without any remedy, except the too-often ineffectual resources of Nature.

"But so far as the mere closing of the simple ulcers is involved, thanks to the elasticity and yielding power of the skin, the anaplastic method is rarely necessary. In those of moderate size, and in some, too, of immense size, Nature does the work of reparation with very little assistance, provided, always, that little be judicious. And on those again of *greater size*, such, for example, as result from extensive burns and scalds, or from diffuse gangrenous erysipelas, a flap of sufficient dimensions to cover them could hardly be removed with safety from any part of the body."*

Since, then, "a flap of sufficient dimensions to cover them could hardly be removed with safety from any part of the body," I would again suggest that we should, in a few extreme and nearly parallel cases (I allude to the cases which I have myself described), endeavor to establish a new center or focus of cicatrization.

In the report of Dr. Watson's cases, no allusion is made anywhere to the impracticability of engrafting a sufficient amount of skin to completely supply the loss. The case itself, for which alone I have

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* *N. Y. Jour. of Med.*, vol., xiii., p. 344. Dr. Watson's Reclamation.

reserved the operation, did not exist. The ulcers were so small, that to supply the *entire* loss by Anaplasty was not impracticable. The integuments in the vicinity were not so contracted and drawn in towards the sore, as that to employ them for the purpose of covering it over would be only "substituting one ulcer for another" (p. 167 of my paper). Very naturally, therefore, it did not occur to Dr. Watson what modification of Anaplasty might be necessary in case these difficulties had actually existed. One seldom thinks to provide for an absent emergency.

That Dr. Watson has not anticipated me in my *results*, it is scarcely necessary for me now to repeat. He has never yet thought of making the flap smaller than the space which it is intended to supply, and then trusting to growth and expansion of the graft to complete the cure. The cases in which he has operated have not involved the necessity of this expedient. He has not, therefore, adopted my procedure, nor obtained my results.

The second case (G. C.), referred to by Dr. Watson in his Reclamation, was never published, until it was drawn from the Hospital records to answer my "claim," and I have, therefore, thus far confined the comparison of principles and of practice to the analogies or dissimilarities to be observed between my case and the case published in the American Appendix to Velpeau's Surgery, and furnished by Dr. Watson.

I am certainly not responsible for never having heard of the case of G. C., although it might have been "much talked about at the Hospital and elsewhere." Yet this case possesses, certainly, more features in common with my own than the one published in Velpeau. The ulcer had been caused by the sloughing of the toes and metatarsal bones of the right foot; the stump would not heal permanently, but continued at intervals to close and again open, causing him serious annoyance. At the time of the operation, a callous ulcer existed upon the end of the stump; and this ulcer had existed during most of ten years. It is probable, therefore, that one obstacle to the closure was the tense and inelastic condition of the adjacent skin; but that this was not the sole, or even the principal obstacle, is evident from the fact that the operator was able to supply the loss by a flap obtained near the sore. It is quite probable, therefore, that the callous condition of the sore, and its peculiar situation on the end of the stump, constituted the main impediments. Yet I will not deny that it may have been a case nearly in point, and for which I should have suggested, rather than the less certain method of supplying the loss from the adjacent skin, the

method adopted by myself, viz., of transplantation from a remote part.

Whether any cases ever occur in which an ulcer refuses to heal, chiefly or solely because of the great amount of integument which has been lost, I will now consider.

I have said that ulcers generally close over by either the formation of new skin, or by the condensation of the granulations and the consequent contraction of the old skin. The limit to the centripetal contraction of the old skin is determined by its extensibility, qualified sometimes by the proximity of a joint, and the more or less flexure of the parts over which the integument is drawn. To this contraction there is, then, doubtless, a measure. It is not competent to the supply of every supposable loss of integument, and what hereafter remains to be done must be accomplished solely by the formation of new skin, and this mostly, if not wholly, as an outgrowth from the old. The exceptions which occur to this rule are too few to encourage us ever to rely upon them for aid. Let us determine, then, whether also to the formation of this new tissue there is a limit, or whether, on the contrary, it may continue to develop itself indefinitely. It will be fortunate if the latter supposition proves to be the correct one.

When an ulcer is healing, what do we observe? First, the granulations rise gradually towards the surface, until, along the margins at least, the level of the adjacent skin has been attained. At this moment, the new skin begins to form upon the peripheral granulations, as a pale pinkish circle, which becomes daily more and more opaque and white, until, in the end, it approaches very nearly to the color and firmness of the original structure. This process is at first rapid, and promises soon to close over the most extensive wounds in a brief period. And whether the wound is large or small, the same thing may be seen—the formation of new skin tissue is at first rapid, if the health and other circumstances are favorable. Soon, however, it is observed to progress more slowly, and even in ulcers, which were from the beginning quite small, we are often surprised to find how tedious, after a few days of rapid progress, are the final stages; and how long a time it takes to close up the last few lines of its surface. Nor is this change in the rapidity of the process by any means owing to a change in the health of the patient. It may often be observed to occur, and with the same uniformity of decline, when the health of the person affected is daily improving. Nor is it, again, because the extensibility of the skin in the vicinity has been exhausted, that this delay occurs, for I am speaking only of the new growth, and it is of this that I observe so constantly

that *its* progress or development is daily more and more tardy. I wish to explain this phenomenon.

I think new skin tissue is formed, not simply upon, but in some sense, *by* the old tissue. When, therefore, I say :—"The formative power of the old skin does not extend beyond a few lines. The new vessels, becoming more and more attenuated as they stretch inward from the periphery, lose, at length, the power of generating epithelial cells, or, if formed, they are too imperfectly organized to sustain an existence, and they crumble away from the slightest provocation" (*page* 11 *of Article on Elkoplasty*) I have sought only to express my convictions that the new tissue was dependent upon the old for its material of repair. A belief which, with modifications, is entertained by many pathologists in common with myself. Mr. Miller observes, "As a general rule, integument is formed *by* and from integument,"* which expression he afterwards explains to mean, "It is not intended to be understood that the original skin sustains both the production of the organizable material, and the management of the organizing process; the major part of the blastema, whence the cuticular formation is produced, is doubtless furnished by the parts immediately beneath—granulations; and these may also contribute much to the organization. But the process of organization is *commenced* by the original skin, in that portion of the blastema with which it is in immediate contact; and continuance of the process is then, doubtless, maintained by those parts, whether recent or old, with which the advancing pellicle comes in contact."†

But certainly this is a point in pathology which is yet far from being absolutely determined. Whether the lymph which is to develop subsequently into epithelial cells has issued from the capillary vessels of the old skin, or from the vessels of the granulations, the microscope does not decide. The vessels from both of these structures are lying in close juxtaposition, if they are not actually in inosculation, wherever the epithelial cell or its plasma is sought to be obtained. The precise source, therefore, of this reparative material, remains at present a matter of conjecture. Mr. Miller believes that the old tissue furnishes the first plasma, and that subsequently the granulations assume this function entirely, leaving the old tissue no other duty, perhaps, than that of "management," or the assimilation of the products.

I wish to express my dissent from only the latter part of this hypo-

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* *Principles of Surgery*, by JAMES MILLER. 3d Amer. Ed., p. 199.

† Page 199.

thesis, and to explain more fully why I suppose that the old tissue continues to the last, not only the management, or adaptation of the new material, but also the production or effusion of the same; from which, also, I shall deduce the inference, that, when the old skin or its vessels fail to furnish a supply of blastema, the cicatrization must generally cease.

First.—If the granulations or their appropriate vessels are competent, after the process has been commenced by the vessels of the old skin, to the formation of suitable plasma for the construction of epithelium —if this is with them a usual or a normal function, then ought they to perform this duty with as much speed and certainty as did the vessels of the old skin, whose function they have now assumed. But the fact is otherwise. The process, at the moment when it is believed that the skin has relinquished its productive agency to the granulations, languishes and finally ceases altogether.

If, however, we regard the new skin tissue, or the lymph of which it is to be constructed, as always a product of the old, or at least that the new material shall always require some element of matter from the old skin, which shall determine its development into epithelium, then we can readily understand how the gradual diminution of the capillaries through a new and always less perfectly organized structure shall at length render it impossible for them to furnish the plasma requisite for the repair, or for the construction of epithelium cells.

Second.—There are many analogies in the various processes of reproduction and repair which furnish support to this doctrine. Each tissue, when inflamed, furnishes a reparative material like that from which itself has been constructed. "When it is seen that in inflammations of bone the lymph usually ossifies; in those of ligament, is converted into a tough ligamentous tissue; and that, in general, lymph is organized into a tissue more or less corresponding with that from whose vessels it was derived; it is usually concluded that this happens under what is called the assimilative influence of the tissues adjacent to the organized lymph. But we may better explain the facts, by believing that the material formed in the inflammation of each part partakes, from the first, in the properties of the material products of that part; in properties which we know often determine the mode of formation independently of any assimilative force."*

I think, moreover, this case itself—the ulcer which continues to cicatrize more and more slowly—furnishes evidence that it is not by the

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* *Lectures on Surgical Pathology*, by James Paget. Amer. Ed., p. 223.

law of analogous formations, or by assimilation, that epithelial cells are here determined, since this law would continue to operate to the consummation of the cure, and that without delay or abatement.

Third.—I have made a careful vertical section into the new skin, parallel to and about one line from the visible margin of a healing ulcer, and I have observed that the process of cicatrization, along this margin, was on the third or fourth day thereafter sensibly delayed. This I have repeated many times on ulcers, at various stages of cure, and always with the same result, provided the walls of the incision were kept only slightly asunder after the wound had been made.

I do not see how this incision should have disturbed the plastic or assimilative force of the free and yet unbroken margin, nor how the circumstance of retardation can be explained, if we believe the granulations below alone furnish the supplies for the new skin. And yet the fact finds a ready solution in the hypothesis that the old skin, or its capillaries, were the vehicles of nutriment for the new, and that by this bisection of their channels the supply has been cut off or interrupted.

My argument is, finally, that such cases as I have supposed, in which the ulcer will refuse to heal, solely because of the extent of tegumentary loss, do and must continue to occur, from the very laws which govern the cicatrization of such wounds.

That they do occur, I affirm also from my own observation and from the concurrent observation of others. Again and again do we find it necessary to amputate a limb, because the integument has been stripped from it beyond the power of nature to repair; and if the same results do not follow after extensive burns, it is, doubtless, because the original skin is only partially destroyed over all this surface, and there remains, therefore, a multitude of little islets from which new skin is capable of advancing.

As pertinent to this question, I will quote from a recent American reprint: "Cicatrization advances with greatest rapidity around the edges of the sore; the center taking the longest time to heal, in consequence of the activity of the process appearing to diminish, the further the new skin extends from the old tissues. *Indeed, if the ulcer be large, there may not be sufficient for the cicatrization of the center.*"*

But if it were true that all ulcers may in time be cured, under proper medical treatment, may it not be well to interfere in some cases of very

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* *Science and Art of Surgery*, by JOHN ERICHSEN. American Edition, p. 69.